Mumbai University
Question Paper

NETWORK SECURITY

B.Sc.IT: Semester – V
October – 2016

Time: 3 Hours   **Total Marks:** 100

N.B.: **(1)** *All Question are Compulsory.*
  (2) *Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.*
  (3) *Answer To The Same Question Must Be Written Together.*
  (4) *Number To The Right Indicates Marks.*
  (5) *Draw Neat Labeled Diagrams Wherever Necessary.*
  (6) *Use of Non – Programmable Calculator is allowed.*

Q.1 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) What is DOS? How DOS is different from DDOS? **(5)**
(B) Describe OSI Security Architecture. **(5)**
(C) Short note on Substitution Cipher. **(5)**
(D) How does DES works? Explain. **(5)**

Q.2 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Explain the concepts of RSA Algorithm. **(5)**
(B) What is Shift Cipher? Explain with simple example. **(5)**
(C) Compare between Symmetric Cryptography and Asymmetric Cryptography. **(5)**
(D) What is the concept of Vigenere Cipher Encryption? Explain. **(5)**
(E) Define Cryptosystem. Explain the concept of Cryptosystem with the help of Communication Channel. **(5)**
(F) What are the different types of Cryptoanalysis Attacks? Explain. **(5)**

Q.3 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) What is Digital Signature? Explain the concept in detail. **(5)**
(B) Describe Blom's Key Distribution Scheme. **(5)**
(C) Explain in detail Diffie-Hellman Key Exchange Algorithm. **(5)**
(D) Short note on Station To Station Protocol. **(5)**
(E) What is the concept of Birthday Attack? Explain. **(5)**
(F) What is Signature Scheme? List some examples. **(5)**

Q.4 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) List & explain the categories of Security Mechanisms of x.800. **(5)**
(B) Describe the Layered Model of OSI. **(5)**
(C) Define Computer Security. Explain the necessity of Computer Security. **(5)**
(D) Differentiate between Passive Attack & Active Attack. **(5)**
(E) Explain the types of Passive Attack. **(5)**
(F) Explain Network Security Model. **(5)**

Q.5 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Describe PGP Trust Model. **(5)**
(B) What is the concept of Key Ring in Key Management? **(5)**
(C) What are the functions of S/MIME? **(5)**
(D) Short note on PKIX Model. **(5)**
(E) What are the contents of X.509 certificates? **(5)**
(F) Short note on Kerberos. **(5)**

[TURN OVER]

Q.6   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   What are the advantages of IP Security? Explain.   **(5)**

(B)   Describe ESP Packet Format.   **(5)**

(C)   Describe Anti-Relay Attack.   **(5)**

(D)   Describe Transport Mode & Tunnel Mode.   **(5)**

(E)   Explain the term: Security Association Bundle.   **(5)**

(F)   What services are provides by IPsec?   **(5)**

Q.7   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   What is Honeypot? Explain.   **(5)**

(B)   Explain the following terms: Trojan Horse, Morris Worm.   **(5)**

(C)   What are the typical Phases of operation of Virus or Worm?   **(5)**

(D)   What is a Firewall? Explain the necessity of Firewall.   **(5)**

(E)   What are the various Antivirus Techniques? Explain.   **(5)**

(F)   What is DMZ? Explain the importance of DMZ.   **(5)**

ASP.NET WITH C#

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Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain the concept of Namespaces with suitable example.   **(5)**
(B)   What is Type Conversion in C#? How is it carried out in C#?   **(5)**
(C)   Explain in brief Connected and Disconnected Mode of ADO.net.   **(5)**
(D)   Explain in brief: **(5)**
   (i)   *JIT Compiler*
   (ii)   *Garbage Collector*

Q.2   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Write a short note on Assembly.   **(5)**
(B)   Explain Switch Case with fall through in C#.   **(5)**
(C)   Explain with an example the concept of Inheritance.   **(5)**
(D)   Write a Console Program to find a Factorial of entered number.   **(5)**
(E)   Explain the concept of Method Overloading with an example.   **(5)**
(F)   Write a short note on Exception Handling in C#.   **(5)**

Q.3   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Write a short note on Conversions.   **(5)**
(B)   Explain the steps of creating a Delegate in C#.   **(5)**
(C)   Explain any two properties of the Text Box and Check Box Controls used in Windows Programming. **(5)**
(D)   Write a short note on MDI.   **(5)**
(E)   Explain any four properties of List Box Control.   **(5)**
(F)   What are Collections? Write different Collections support by C#.   **(5)**

Q.4   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Explain ASP.net Page Life Cycle in brief.   **(5)**
(B)   What are Themes? Explain its different types.   **(5)**
(C)   Write a short note on CSS Selectors.   **(5)**
(D)   Write a Web Application that accepts Data from user for Online Mobile Bill Payment and displays **(5)**
         the data on click of "Submit" Button. Draw an appropriate interface and write the snippet code (.cs
         file) on click of command button.
(E)   What is the difference between Radio Button and RadioButtonList Control?   **(5)**
(F)   Write a short note on State Management.   **(5)**

Q.5   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   What are Validation Controls supported by ASP.NET. Describe them in brief.   **(5)**
(B)   Describe Common Validator properties for different Validation Controls.   **(5)**
(C)   Explain the steps of creating Master Page in Web Development.   **(5)**
(D)   Describe in brief SitMapPath Control.   **(5)**
(E)   Explain any four properties of Menu Control.   **(5)**
(F)   Explain Request and Response Objects.   **(5)**

[TURN OVER]

Q.6   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Explain with an example LINQ to XML.   **(5)**
(B)   What are different LINQ Operators?   **(5)**
(C)   What is SQLDataSource Control used in ADO.Net?   **(5)**
(D)   Explain any four properties of GridView Control.   **(5)**
(E)   Explain in brief Authentication and Authorization.   **(5)**
(F)   Explain the basic Attributes of ListView Control.   **(5)**

Q.7   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Write a short note on Architecture of AJAX.   **(5)**
(B)   Explain the use of Timer Control used in AJAX.   **(5)**
(C)   What are the features of JQuery?   **(5)**
(D)   How to create a Web-Service?   **(5)**
(E)   Explain about DOM used in JQuery.   **(5)**
(F)   Write a snippet code to hide and display the header text on click of command button using JQuery.   **(5)**
        (Hint: Use Hide() and Show())

Mumbai University Question Paper

SOFTWARE TESTING

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Q.1 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Explain Software Testing Life Cycle. **(5)**
(B) Distinguish between Software Quality Control and Software Quality Assurance. **(5)**
(C) What is Defect? Why Software does have Defects? **(5)**
(D) Give the guidelines for developing a Test Plan. **(5)**

Q.2 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Explain is Quality? Discuss the Financial Aspects of Quality. **(5)**
(B) Explain the challenges in Software Testing. **(5)**
(C) What is the importance of Validation in Software Testing? **(5)**
(D) Explain the relationship between Quality and Productivity. **(5)**
(E) Compare Black Box and White Box Testing. **(5)**
(F) Write a note on Total Quality Management (TQM). **(5)**

Q.3 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Explain the significance of Cyclomatic Complexity. **(5)**
(B) What is Regression Testing? **(5)**
(C) What is Equivalence Class Testing? Explain two types. **(5)**
(D) Explain the limitations of functional Testing. **(5)**
(E) What is Retrospection? Explain with reference to Functional Testing. **(5)**
(F) What is the use of Decision Table of Functional Testing? **(5)**

Q.4 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Writes a note on Metric Based Testing. **(5)**
(B) Why and how the Data Flow Testing is carried out? **(5)**
(C) What are the advantages of Structural Testing? **(5)**
(D) What is Retrospection? Explain with reference to Structural Testing. **(5)**
(E) Write a note Du Path Test Coverage Metrics. **(5)**
(F) Explain the terms DD Paths and DD Paths Graph. **(5)**

Q.5 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) When will be the Bottom Up Approach useful in Testing Process? **(5)**
(B) State and explain different levels of testing. **(5)**
(C) What is System Testing? Explain its significance. **(5)**
(D) Explain in detail Regression Testing. **(5)**
(E) Write a note on Big Bang Approach of Integration Testing. **(5)**
(F) Compare the Objectives of Interaction Testing and System Testing. **(5)**

[TURN OVER]

Q.6 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) What are different levels of Objective Oriented Testing? **(5)**

(B) What is Class Testing? Explain the process. **(5)**

(C) Compare Conventional and Object Oriented Testing. **(5)**

(D) Explain the classes as unit with respect to Object Oriented Testing. **(5)**

(E) What is the significance of Performance Testing? With reference to Object Oriented System Testing. **(5)**

(F) Explain how UML. Supported for Object Oriented Integration Testing. **(5)**

Q.7 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Compare Process Metrics Verses Project Metrics. **(5)**

(B) What are the contents of Testing Policy? **(5)**

(C) What is a Cause and Effect Diagram? Give the guidelines to draw. **(5)**

(D) State and explain the factors affecting the effectiveness of testing. **(5)**

(E) Define the terms 'Efforts' and explain the different types of Efforts. **(5)**

(F) State and explain different Test Estimations. **(5)**

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ADVANCED JAVA

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Q.1 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Explain the difference between Heavyweight & Lightweight Components. **(5)**
(B) How we can achieve Styled Text in Swing? Explain with suitable code syntax. **(5)**
(C) How to use save points in JDBC Transaction? **(5)**
(D) Explain the difference scopes of JSP Objects. **(5)**

Q.2 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Explain Event Handling in Swing in short. **(5)**
(B) Explain creation of JFrame with help of simple program. **(5)**
(C) Explain JTable in Swing with the steps of creating a Table. **(5)**
(D) When to use a Progress Bar & Progress Monitor? **(5)**
(E) Write short note on Split Panes in Swing. Explain the constructors & methods of it. **(5)**
(F) Explain in detail the reaction of changeable choice JList with help of example. **(5)**

Q.3 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) What is Servlet? Write short notes on Java Servlet Technology. **(5)**
(B) What is Deployment Descriptor? Explain its structure. **(5)**
(C) Write short note on Servlet & ServletConfig interfaces with explaining its methods. **(5)**
(D) Explain the working of Servlets with help of suitable diagram. **(5)**
(E) Write short note on Cookie Class. **(5)**
(F) Write a Servlet Code to develop Simple Calculator. **(5)**

Q.4 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) What is JDBC? Explain the Architecture of JDBC in detail in detail. **(5)**
(B) Write and explain the steps for Java Database Connectivity. **(5)**
(C) Explain RowSet and its type in JDBC. **(5)**
(D) What are directives in JSP? Explain its types. **(5)**
(E) Write short note on Request and Response Object in JSP. **(5)**
(F) List and explain Implicit Objects used with Unified Expression Language. **(5)**

Q.5 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Write short note on MVC Architecture. **(5)**
(B) Explain in details phases of JSF Life Cycle. **(5)**
(C) Explain the use and Structure of faces-config.xml file. **(5)**
(D) Write short note on following: **(5)**
    • *Session Beans*
    • *Message Driven Beans*
(E) Explain the ways of Accessing Enterprise Beans. **(5)**
(F) What is EJB? Explain the benefits of EJB. **(5)**

[TURN OVER]

Q.6 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A) What is Hibernate? Explain the features of Hibernate. **(5)**

(B) Explain the Hibernate Architecture with help of suitable diagram. **(5)**

(C) Explain the Structure of hibernate.cfg.xml. **(5)**

(D) Explain in detail about core components of Struts Framework. **(5)**

(E) What is Value Stack in Struts? State & explain the Execution Flow of Value Stack. **(5)**

(F) Write a short on Interceptors in Struts. **(5)**

Q.7 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A) Write short note on SOAP. **(5)**

(B) What are Web Services? Explain uses and applications of Web Services. **(5)**

(C) Write a short note on following: **(5)**
  - *Session in Java Mail*
  - *Authenticator*

(D) What are Naming & Directory Services? **(5)**

(E) Write short note on Resource Injection and its types. **(5)**

(F) What is Email? Explain the anatomy of Email Message. **(5)**

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LINUX

ADMINISTRATION

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Q.1 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Write a short note on ext2 and ext3 File Systems. **(5)**
(B) Explain the configuration file of GRUB. **(5)**
(C) State the files used for configuring user level ftp access. Explain the configuring in brief. **(5)**
(D) How is Xinetd Server configured? **(5)**

Q.2 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Write a short note on RAID. **(5)**
(B) Explain the importance of the Swap Partition in Linux. **(5)**
(C) List and discuss the duties of a System Administrator. **(5)**
(D) List and explain any five distributions of Linux. **(5)**
(E) Discuss the Importance of the following Linux Directories: **(5)**
  (i) *home*
  (ii) *etc*
  (iii) *bin*
  (iv) *root*
  (v) *opt*
(F) What is VFS in Linux? State the importance of proc directory. **(5)**

Q.3 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Write a short note on Subnetting. **(5)**
(B) What are System Wide Shell configuration scripts? State the config file read order for bash. **(5)**
(C) Explain how the following files are used in Linux: **(5)**
  (i) *fstab*
  (ii) *motd*
  (iii) *issue.net*
  (iv) *apmd*
  (v) *syslog.conf*
(D) Discuss how chkconfig allows the administrator to message rc scripts. **(5)**
(E) What is DHCP? Write the steps to configure DHCP Server. **(5)**
(F) State any five NFS Export Options. **(5)**

[TURN OVER]

Q.4   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   What is Time Server? How is it configured?   **(5)**

(B)   Explain the Global Section of Samba Server.   **(5)**

(C)   Compare Xinetd and Standalone Services.   **(5)**

(D)   Explain how the following services are used in Linux: **(5)**
   (i)   *sftp*
   (ii)   *rsync*
   (iii)   *telnet*
   (iv)   *ssh*
   (v)   *finger*

(E)   Write a short note on iptables.   **(5)**

(F)   Discuss any five squid configuration parameters.   **(5)**

Q.5   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   List and explain the different types of DNS servers.   **(5)**

(B)   Write a short note on Email Security.   **(5)**

(C)   List and explain any five statements used in the file named.conf.   **(5)**

(D)   How are mail aliases set up for Sendmail?   **(5)**

(E)   Write the steps to enable anonymous uploads in vsftp.   **(5)**

(F)   List the various DNS record types used in a Zone File.   **(5)**

Q.6   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Explain the working of Web Server.   **(5)**

(B)   Write a CGI Script to display the listing of /home/newuser.   **(5)**

(C)   What is RSS? List the minimum required elements in RSS Feed.   **(5)**

(D)   Explain in brief the initial mailman configuration.   **(5)**

(E)   List and explain the Common Mailman Tasks.   **(5)**

(F)   How are virtual servers configured in Apache?   **(5)**

Q.7   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   State how FTP services can be optimized.   **(5)**

(B)   Write the purpose of at least five Kernel Configuration targets.   **(5)**

(C)   Explain the useradd command with various options.   **(5)**

(D)   List and explain the features of sudo.   **(5)**

(E)   Explain the nrwusers command with the help of an example.   **(5)**

(F)   List and explain the various options of rpmquery.   **(5)**